TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

On the elastic and optical properties of cellulose fibers.

H. de Vries (N. V. Onderzoekingsinstituut Research. Arnhem). *Ann. Sci. Textiles Belges No. 4:* 286-303 (December, 1955); *in English.*

An account is given of a detailed investigation of the deformation properties of regenerated, continuous cellulose fibers. An attempt is made to provide a basis for the characterization and classification of such fibers. 16 references.

NATURAL FIBERS A 1

Basic information sources on cotton and cotton manufactures.

September, 1955. 5 p. U. S. Business and Defense Services Administration, Washington 25, D. C. Free.

A comparison of physical, chemical and biochemical methods for measuring changes produced by the heating of cotton cellulose.

R. L. W. Farquhar, D. Pesant and B. A. McLaren (Univ. of Toronto). *Can. Textile J. 73:* 51-56 (February 10, 1956).

Raw cotton was subjected to temperatures ranging from 50°-220°C. for varying lengths of time from 4-24 hours in an atmosphere of air or nitrogen. Analyses of cuticle degradation, weight loss, fluidity, carboxyl and hydroxyl content, as well as enzymatic hydrolysis, were carried out. It was concluded that: (1) heat alone accounted for only a part of the degradation of cellulose; (2) oxidative action began at lower temperatures and accelerated thermal decomposition at higher temperatures; (3) cuticle degradation appeared to be a function of combined thermal and oxidative damage, rather than the result of heat alone. Physical, chemical and biochemical methods of analysis all revealed some phase of the cellulose breakdown. Correlation between the different tests was difficult due to the varied nature of the changes being measured. Physical and enzymatic tests evaluated gradual changes while the more severe conditions of chemical analyses were suitable for determining only wider variations. 47 references.

The future of abaca.

A. E. Haarer. *Fibres 17:* 45-48 (February, 1956).

The decline of a useful fiber crop due to pests and diseases is discussed and future control methods suggested.

Basic information sources on miscellaneous vegetable fibers.

G. Glavin. March, 1955. 7 p. U.S. Business & Defense Services Administration, Washington 25, D. C. Free.

Comparative strengths of some bast and leaf fibers.

H. P. Stout and J. A. Jenkins (British Jute Trade Research Assn., Dundee). *Ann. Sci. Textiles Belges No. 4:* 232-251 (December, 1955); *in English.*

Bast fibers fall into two groups, the members of one group, exemplified by ramie, hemp, and flax, having in general higher tensile strengths than the members of the other group, exemplified by jute. The leaf fibers show a greater range of extension than do the bast fibers, but all such fibers appear to have the same value for the ratio of tensile strength to extension, although the ratio decreases as the fibers become coarser. 19 references.

Relationship between the degree of polymerization and the mechanical properties of cotton fibers degraded by hypochlorites.

A. Parisot and A. Fresco. *Ann. Sci. Textiles Belges No. 3:* 226-243 (1955); *in French.* Through *BCIRA 36:* 73 (1956).

The study of the degradation of cotton fibers, subjected to washing and hypochlorite bleaching under conditions approaching those of industrial bleaching, confirms the results obtained from a similar study carried out on fabrics. It was found that (a) the mechanical strength (measured on the Pressley tester) in the dry and the wet state and the degree of polymerization of the cellulose decrease as a function of the number of washings; (b) the rate of degradation depends upon the concentration of oxidizing agent in the bleaching

solution; (c) the wet strength decreases more rapidly than the dry strength and becomes lower than the latter when, as a result of repeated washings, the degree of polymerization reaches a value of between 600 and 700. This may be due to the presence, in the molecular chain, of special points (one per 600-700 glucose units) whose accessibility to chemical reagents differs from that of the rest of the chain.

Theory of fiber extraction. Chapter 3. The structure of fibers (continued).

J. G. Thieme. *Textile Quart. 5, No. 4:* 263-269 (1955).

Soft fibers: their economic harvesting and preparation.

A. E. Haarer. *Fibres 17:* 5-9 (January, 1956).

This article describes the work that has been done in the breeding of new strains of kenaf and also in retting and harvesting techniques.

Some physical observations on a sample of ramie.

S. K. Bose (Technological Research Laboratories, Calcutta, India). *(Letter to the editor). Textile Research J. 26:* 114-115 (February, 1956).

Fineness and strength of the decorticated, degummed, and bleached samples of this ramie fiber were measured at two different relative humidities, 65 and 80%. The strength values are distributed much more uniformly in the case of the bleached and the degummed fibers than in that of the decorticated sample; change in the relative humidity from 65 to 80% does not seem to affect either fineness or strength of any of the three categories of ramie significantly. 8 references.

Sheep and wool production in Turkey.

N. Ayas. *J. Textile Inst. 47:* P12-P19 (January, 1956).

Variations in fiber properties and woolen processing.

Textile Recorder 73: 61-63 (February, 1956).

How variations in fiber properties affect woolen cloth in both the finished state and during processing.

MAN-MADE FIBERS A 2

Polymer progress 1955. Part 6. The acrylic family reconsidered.

J. A. Somers. *Man-Made Textiles 32:* 55-56 (December, 1955).

Improving the dyeability of polyacrylonitrile fibers by copolymerization of acrylonitrile with hydrazine or hydrazine substituted derivatives or with N-acrylyl-pyrrolidine.

The chemistry and physics of Ardil protein fiber.

R. Campbell (Imperial Chemical Industries Ltd). *Ann. Sci. Textiles Belges No. 4:* 252-285 (December, 1955); *in English.*

Some of the fundamental physical chemical and organic chemical investigational work undertaken during the development of Ardil protein fiber from groundnuts is described. Included are studies on protein fractionation, denaturation and crosslinking in fiber formation. Groundnut proteins are compared to proteins from lupin seeds and soybeans, maize, zein, casein and wool. 36 references.

Properties of triacetate. Part 1.

Man-Made Textiles 32: 49-50 (January, 1956).

Molecular structure in reference to heat treatment and stretching is discussed. The article explains how this fiber is in some respects an exception in its physical behavior under the influence of temperature and in the relation between crystallinity, extensibility and tensile strength.

Properties of triacetate. Part 2. Heat treatment in relation to dyeing and finishing.

Man-Made Textiles 32: 54-55 (February, 1956).

Formation of filter materials from glass fibers.

V. A. Wente and R. T. Lucas (Naval Research Laboratory). *Ind. Eng. Chem. 48:* 219-222 (February, 1956).

Work performed in the development of glass fiber aerosol filter materials is described. 7 references.

Celon—the new Celanese fiber.

J. W. Fisher (British Celanese Ltd). *Fibres 17:* 41-44 (February, 1956).

The chemistry and manufacture, both of filament and staple, of Celon, a fiber based on 6-amino-caproic acid, are described.

Summary of information on man-made fiber, yarns, and fabrics.

T. R. McMullen. March, 1955. 8 p. U. S. Business & Defense Services Administration, Washington 25, D. C. Free.

A brief survey of the history, U. S. industry, products and uses, and types and processes of man-made fibers, yarns, and fabrics is given, followed by a bibliography of basic information sources.

Fine fiber structure and resistance of man-made fibers to heat or x-rays.

A. Sippel. *Textil-Praxis 10, No. 11:* 1131-1133 (1955); *in German.* Through *BCIRA 36:* 70 (1956).

It is shown that there are similar relationships between heat-resistance and fine fiber structure or construction of the macromolecules as between resistance to light and fine fiber structure. The degradation of the man-made fibers was studied by measuring their loss of strength and decrease of degree of polymerization. The degradation of the fibers caused by heat as well as by x-ray radiation was found to be considerably dependent upon the presence of atmospheric oxygen. The results are interpreted.

Teflon.

J. T. Rivers and R. L. Franklin (E. I. du Pont de Nemours and Co., Inc.). *Am. Textile Reptr. 70:* 35, 39-40 (February 2, 1956).

Development, uses, table of properties.

YARN PRODUCTION B

Technology of spun-dyed fiber blending.

Courtaulds Ltd. *Man-Made Textiles 32:* 47-49 (February, 1956); *Textile Merc. 134:* 187-188 (February 3, 1956).

Notes from Courtaulds' Fibro-Duracol manual.

Spinning nylon carpet yarns on the woolen system.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 2 p. Technical Information Bulletin N-48.

Synthetic continuous filament yarns for the hosiery trade.

A. Aston. *Hosiery Times 29:* 61-66 (February, 1956).

A brief review of modern methods of throwing and processing.

The problem of automatic cleaning in the spinning mill.

R. Thiebaut. *Industrie Textile:* 731-736 (October, 1955); *in French.* Through *BCIRA 36:* 17 (1956).

Problems associated with mechanical cleaning of machines and workrooms are discussed, with special reference to the construction and application of the Rewi-cleaner.

OPENING, PICKING, FIBER PREPARATION B 1

Blending of textile fibers.

A. P. Aldrich, Jr. (Aldrich Machine Works). *Can. Textile J. 73:* 43-46 (January 27, 1956).

A general discussion of blending and of methods and equipment in use on the cotton and woolen systems.

Lubricants for textile fibers.

M. Elton. *Tex 14, No. 11:* 1531-1535 (1955); *in Dutch.* Through *BCIRA 36:* 51 (1956).

In this review, the author discusses the choice and properties of fiber lubricants (viscosity, flame-point, color, behavior to metals, stability to oxidation, removability by washing, emulsifying properties, volatility, lubricating power), with reference to special requirements of oils for viscose rayon (reactivity to sulfur compounds and zinc salts, particle size of the emulsion, behavior during fatigue tests, resistance to fungi), nylon 66, and wool.

Integrated system for cleaning cotton in textile mills.

R. A. Rusca (Southern Regional Research Laboratory). *Am. Textile Reptr. 70:* 11-13, 43-44 (February 2, 1956).

The SRRL cleaning system incorporates three distinct types of machines. Following the customary blending feeders is an opener-cleaner (designed around the basic principle of the SRRL cotton opener), an aerodynamic cleaner, and the carding cleaner. Diagram.

Whitin axi-feed and axi-flo units.

Whitin Rev. 23: 13-20 (January-February, 1956.)

Experience with Whitin axi-feed and axi-flo in the opening department of Fieldcrest Towel Mill, Fieldale, Va.

Modern woolcombing theory and practice. Part 1.

R. Walker. *Textile Mfr. 82:* 10-12 (January, 1956).

The author deals with preparation of greasy wool, preparation of scoured wool, top production, the impurities present in wool, carding, combing and preliminary treatment before scouring.

CARDING AND COMBING B 2

Jute carding practice and associated problems. Chapter 5. Carding practice, machines and methods.

C. M. Watson. *Textile Quart. 5, No. 4:* 232-245 (1955).

Air and its relationship to wool carding.

P. M. Strang. *Whitin Rev. 23:* 31-41 (January-February, 1956).

This paper correlates fluid dynamics and textile carding. Air flow patterns are discussed theoretically. Photographs. Diagrams. 5 references.

Mill test procedures. Part 2. Tests for better carding.

N. L. Enrick. *Modern Textiles Mag. 37:* 34, 38, 51-52 (February, 1956).

Covers principles, practice, and purpose of the following tests: card web nep count, fly waste or droppings, flat strips, can contents. Step-by-step procedures are furnished. Includes a discussion of frequency of testing, testing cycle, sampling, and evaluation of test results. Illustrative diagrams show sample collecting devices and worksheet forms, for use in conjunction with the tests, and taken from actual mill uses.

Roller and clearer cards.

J. Gilljam. *Z. ges. Textil-Ind. 57, No. 21:* 1368-1374; *Nos. 22-23:* 1485-1488 (1955); *in German.* Through *BCIRA 36:* 52 (1956).

The tendency in the development of (roller and clearer) carding machines is discussed.

DRAWING AND ROVING B 3

Cop formation by the carded selfactor and possible faults.

P. J. M. van Gorp. *Tex 14, No. 10:* 1393-1400; *No. 11:* 1537-1544 (1955); *in Dutch.* Through *BCIRA 36:* 52 (1956).

The mill of today. Part 44. Fundamentals of drafting. Section 2.

R. Z. Walker. *Textile Bull. 82:* 80-82 (February, 1956).

Brief resume of parallelism of the fibers; uniformity of sliver and rovings; effect of twist; double roving; setting of drafting rolls; staple length; amount and speed of drafting; condition of covered rollers; and tension in front of delivery roller.

Excellent sliver uniformity claimed in Saco-Lowell's Versa-Matic drawing.

Saco-Lowell Shops. *Am. Textile Reptr. 70:* 17-18, 34 (March 1, 1956).

The new frame produces 40 pounds an hour at 250 feet per minute for 55 grain sliver. Photographs.

Top roll suspension and weighting arrangement for spinning.

Whitin Rev. 23: 6-11 (January-February, 1956).

The Whitin Unitrol center suspension weighting unit and new top rolls for spinning frames are described and illustrated.

Method for determining the drawability of carded roving.

E. Boroczy. *Textil-Praxis 10, No. 11:* 1089-1092 (1955); *in German.* Through *BCIRA 36:* 52 (1956).

The method described consists in twisting the roving corresponding to a chosen twist constant and determining the load at break. The drawability of the roving depends upon its irregularity, both with regard to the irregular distribution of the fibers over the roving length and their parallelism.

How to improve woolen roving uniformity.

S. E. Ziak. *Textile Ind. 120:* 128-131 (March, 1956).

Some of the checkpoints and attachments important to the prevention of unevenness are discussed.

Speed frames: conversion to high drafting.

Platts Bull. 8: 379-383 (December, 1955).

The following drafting systems are available as conversions: (1) 4-roller 2-zone drafting with saddle and lever weighting, and in some cases with overarm tray weighting, and (2) top apron drafting on 3 lines of rollers with overarm tray weighting. Factors which govern the use and suitability of these systems include (a) staple range, i.e. the difference between the longest and shortest staples to be processed, (b) the total draft required, (c) the weight of the sliver fed to the system and (d) the hank roving produced.

Roving operations: 12 x 6½ inch packages prove advantageous.

Whitin Rev. 23: 21-25 (January-February, 1956).

Experience with Whitin large package roving frames at Limestone Mfg. Co., Gaffney, S. C.

SPINNING, WINDING, TWISTING B 4

The effect of balloon-restricted rings on the number of breakages and spinning tension.

W. Wegener and H. Peuker. *Textil-Praxis 10, No. 11:* 1096-1104 (1955); *in German.* Through *BCIRA 36:* 52 (1956).

It was found that the use of balloon-restricting rings during spinning reduces and equalizes the spinning tension, and makes it possible to employ lighter travelers and to increase the spindle

speed. The experiments were carried out on a "perfect" ring-spinning machine by counting the number of breakages and measuring the tension. The optimum position of the balloon-restricting ring was found to be at a height of 135 mm, the optimum diameter 42 mm, the ratio of the distances between balloon-restricting ring and the thread guide to the ring being 0.52 and the ratio of the diameters of the balloon-restricting and spinning ring 0.83. In spite of the more favorable tension conditions, however, the number of breakages increases during spinning of finer yarns; this is probably due to the twist being prevented from spreading.

Recent progress in cotton spinning.

E. Honegger. *Ann. Sci. Textiles Belges No. 3:* 66-111 (1955); *in French.* Through *BCIRA 36:* 52 (1956).

In this review, the author describes developments in opening machines, carding engines, draw-frames, combers, fly frames, and ring-spinning machines, with reference to the individual manufacturers. Illustrations. Bibliography.

The preparatory processes and the spinning of cotton and viscose blends on the cotton system.

Textile Technical Federation of Canada. Montreal, 1955. 20 p. (Technical Bulletin No. 1). Through *BCIRA 36:* 51 (1956).

Information on the different stages of processing is presented. It is based on a bibliographical study made by the Cornwall and District Textile Association.

The silk industry of Lyons: silk, and artificial and synthetic fibers.

C. J. Pinte. *Ann. Sci. Textiles Belges No. 3:* 45-65 (1955); *in French.* Through *BCIRA 36:* 52 (1956).

The author shows by examples how the silk industry of Lyons has improved the techniques of silk throwing and spinning, and dealt with the possibility of processing and utilizing man-made fibers.

Spinning yarn from 1½ oz. cotton samples.

Textile Recorder 73: 62-63 (March, 1956).

The miniature cotton spinning range developed for mill tests by the Shirley Institute is described. Photographs.

Woolen and worsted yarn manufacture. Part 1. Spinning faults.

Wool Record 89: 313, 315 (February 9, 1956).

An examination of some common faults in spinning and twisting and methods of eliminating them.

Krause horsehair twister.

R. Krause. *Textil-Praxis (English ed.) No. 4:* 159-160 (November, 1955).

Model RHZ for twisted horsehair yarn.

Ring twisting machinery: care and maintenance.

Wool Record 88: 1527-1528 (December 29, 1955); *89:* 28-30 (January 5, 1956).

Theory and practice of flax spinning. Part 2. Machinery and equipment. Chapter 15. Winding (continued).

A. V. Pringle. *Textile Quart. 5, No. 4:* 254-262 (1955).

YARNS B 5

A handbook of twisting. Chapter 7. Part 2. Effect of twist on appearance.

N. Truslow (United States Rubber Co.). *Textile Bull. 82:* 108-112 (February, 1956).

How to determine the correct twist for yarn.

J. Duerst. *Textile Ind. 120:* 145-149 (March, 1956).

A new fiber surface theory and measured fiber characteristics are introduced as components of the twist formula. Diagrams.

Influence of twist on fibers and yarns.

A. Webster. *Textile Mfr. 82:* 55-58 (February, 1956).

The shrinkage and crepeing of yarns is discussed and illustrated by photographs, and the theory of twisting yarn and the latent energy contained in a twisted yarn are demonstrated.

Woolen and worsted yarn manufacture. Part 2. Defects in twisted yarns.

Wool Record 89: 359-360 (February 16, 1956).

Causes of long and short lengths of slack twist, wrong fold in yarn, and lashing effects are briefly discussed.

Sewing threads for shoe manufacture.

M. Kappel. *Textil-Praxis 10, No. 11:* 1093-1096 (1955); *in German.* Through *BCIRA 36:* 53 (1956).

The required properties of these threads are described and their preparation and uses are discussed.

New theories on the pilosity (hairiness) of fibers.

A. Barella. *Bull. Institut Textile France No. 55:* 45-55 (August, 1955); *in French.* Through *BCIRA 36:* 68 (1956).

Photometric examination of fibers and statistical evaluation of the results showed the existence of positive, highly significant correlation between the number of detached fibers and apparent yarn diameter; this confirms that their accumulation takes place preferably in thicker and less twisted places. A similar correlation appears to exist between the respective variation coefficients in the same fiber. The number of fibers, detached from its core, per mm of yarn length depends upon the length and fineness of the fiber and the diameter of the yarn.

Bulked yarns.

F. H. Clayton (British Nylon Spinners Ltd). *Hosiery Times 29:* 22, 25-26, 28 (February, 1956).

Brief review of methods of producing nylon crimp yarns, types of yarns, properties and end-uses. Photographs.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Size from sieved flour dust.

D. A. Stephanenkov. *Tekstil. Prom. 15, No. 7:* 39-40 (1955); *in Russian.* Through *BCIRA 36:* 55 (1956).

Laboratory analysis of rye-flour waste has shown that the dry, odorless, off-white product with a small content of husk particles gives an excellent size for cotton yarns of various counts, when dissolved (80 kg) in 1000 l. water with the addition of 4 kg sodium hydroxide (d. 1.33), 2 kg cottonseed oil and 2 kg glycerine. The stability of this size is greater than that of size made from potato starch.

A cone warping and beaming machine.

E. Soder. *Z. ges. Textil-Ind. 57, Nos. 22-23:* 1491-1494 (1955); *in German.* Through *BCIRA 36:* 55 (1956).

The construction of the cone warping and beaming machine DSB (developed by Schlafhorst and Co.) is described and illustrated.

Studies on the weft pirn winding. Part 1. Theoretical and experimental studies on the winding yarn curves around the weft pirns.

H. Uchida, E. Kuze, K. Hyodo and T. Sakai. *J. Soc. Textile Cellulose Ind. Japan 12:* 28-32 (January, 1956); *in Japanese (English summary).*

WEAVING C 2

Jute and linen weaving. Part 3. Loom auxiliary motions. Chapter 1. Warp protector motions.

W. Haggan. *Textile Quart. 5, No. 4:* 246-253 (1955).

Czech machine builders stress shuttleless looms.

J. W. Cohn. *Daily News Record No. 44:* 26, 28 (March 5, 1956).

This is one of a series of articles on business and trade in Eastern Europe.

Pirn changers for silk and rayon.

George Fischer Ltd. *Textile Merc. 134:* 231-233 (February 10, 1956); *Textile Wkly. 56:* 396, 398 (February 10, 1956).

Loom conversion using Fischer single and multi-color pirn changers.

A study in loom fixing. Part 5.

F. D. Herring. *Textile Bull. 82:* 84-88 (February, 1956).

This article covers the unusual or most difficult jobs. A routine checking procedure is given for helping to locate basic causes for trouble.

The Schonherr buckskin loom. Part 4.

A. Lang. *Textil-Praxis 10, No. 10:* 1019-1027 (1955); *in German.* Through *BCIRA 36:* 21 (1956).

Reference is made to the ratchet motion, taking-up of the cloth, means for shed formation, and weft insertion.

Loom drive.

Textil-Praxis 10, No. 10: 1014-1018 (1955); *in German.* Through *BCIRA 36:* 22 (1956).

Reference is made to a series of drives and a diagram is given to show a fully automatic loom control mechanism.

Loom and weaving machine—two ways of technical development.

W. T. Swatek. *Melliand Textilber. 36, No. 9:* 897-902; *No. 10:* 1001-1004 (1955); *in German.* Through *BCIRA 35:* 804 (1955).

Various loom constructions are reviewed and compared with the new weaving machines exhibited at the International Textile Machinery Exhibition at Brussels.

New concept of weaving.

D. Brunnschweiler. *Skinner's Silk and Rayon Record 30:* 36-37 (January, 1956).

The Gentilini-Ripamonti, a high-speed (up to 900 picks per minute) Italian loom, does not use heddles, reed, or shuttles. Its features are described. Diagrams.

Fabric design on the automatic loom. Part 2.

A. L. M. Bayoumi. *Textile Recorder 73:* 56-58 (January, 1956).

The motions of the Saurer 100W super-speed single-shuttle pirn-changing automatic loom are described. Seven fabric designs are discussed and illustrated.

Fabric design on the automatic loom. Part 3.

A. L. M. Bayoumi. *Textile Recorder 73:* 64-67 (February, 1956).

Northrop dobbies and the fabric designs which may be produced on them are described and illustrated.

Stansfield weft-replenishing mechanism.

Cooper Brothers Ltd. *Textile Wkly. 56:* 804-806, 814 (September 9, 1955).

The Stansfield attachment for converting a single shuttle-box Lancashire loom into a pirn-changing automatic loom is modified with a patented weft-cutting device.

Major achievements in weaving machinery in the past year.

J. P. Yates (Henry Livesey Ltd). *Textile Wkly. 56:* 272-274 (January 27, 1956).

Developments in stop-motion devices, shedding mechanisms, weft replenishing devices, weft-changing mechanisms, loom speeds, shuttleless looms, etc., are briefly reviewed.

Knitting mechanisms used in new-type weaving machine.

P. Abbenheim. *Skinner's Silk and Rayon Record 30:* 158-161 (February, 1956); *Textile Wkly. 56:* 355-356, 366 (February 3, 1956); *Textile Merc. 134:* 184-185 (February 3, 1956).

A completely new type of loom in which the reciprocating and periodic motions of the conventional loom have been eliminated and the weaving cycle devised in such a manner that all movements are continuous and even is being built in Spain by Construcciones Mecanicas Cerdans S.A., Barcelona. It will be possible to weave 40 pieces of cloth simultaneously on a machine 20 meters long (maximum length recommended). Features of the loom are described and advantages and disadvantages discussed. Diagrams.

Looms for silk and rayon weaving. Warp beams from steel or light metal. Beam flanges and brake rings.

German Standards Committee. *Textil-Praxis 10, No. 11:* 1106-1108 (1955); *in German.* Through *BCIRA 36:* 55 (1956).

The draft specifications DIN 64 533 and 64 534 contain proposals for the standardization of warp beams from steel or light metal, and for beam flanges and brake rings on silk- and rayon-weaving looms.

We wove a smaller sample.

P. Siminuk (Philadelphia Textile Inst.). *Modern Textiles Mag. 37:* 33, 70 (February, 1956).

In weaving narrow samples on broad looms precautions must be taken to prevent the filling from catching onto nuts and bolts of the lay assembly, particularly when a fairly high twist filling yarn is used, and to center the warp with the eye of the shuttle in the boxes on either side.

KNITTING C 3

System in knitted pattern making on machines of the peg drum type.

W. Davis. *Hosiery Times 29:* 51-53, 57 (February, 1956).

Methods for setting up new hosiery specifications.

E. N. Ditton. *Modern Textiles Mag. 37:* 43, 46, 54 (February, 1956).

The problems and mathematics of full fashioned hosiery specifications are discussed. The principles established can be equally well applied to hosiery produced on circular (seamless) machines.

The Huppert V-type flat knitter for outerwear.

C. Huppert and Co. Ltd. *Hosiery Times 29:* 69-71 (February, 1956).

Among the machine's original features are two stud chains, one on each side, which form an integrated control unit for all motions. By using studs of various shapes and sizes, the speed of knitting as well as yarn changes and the racking sequences of the back bed, can be controlled.

Tension variation in nylon tricot.

Blue Ridge Textile Co. *Textile Ind. 120:* 171-175, 178 (March, 1956).

Compensator-type tension devices and stop motions are used to control and eliminate tension

variations and other sources of beam (bobbin) irregularity originating with yarn putup, traditional disk tensioning attachments, sagging of stopped warp sheets, and location of stop motions at the creel front. An annunciator system is used as an aid to location of ends down or faulty supply packages and works in conjunction with the stop motion. Photographs.

FABRICS C 4

Material faults and the clothing manufacturer.

L. Berney. *Textile Merc. 134:* 278-280, 282, 287 (February 17, 1956).

This article discusses faults and special characteristics affecting the manufacturing procedure and the wearability or life of the garment and describes the setting up of an examination and testing department.

Shelf life of neoprene coated nylon fabrics.

R. Briganti. U. S. Naval Supply Activities, Clothing Supply Office, Brooklyn, N. Y. April, 1955. 20 p. Order from Office of Technical Services, Washington 25, D. C. 75 cents. PB 111 728.

A total of 19 coated fabrics which had been in storage for periods varying from one to over four years were selected for evaluation. These samples included four types of neoprene and one of Buna-N applied to several constructions of nylon. The coated fabrics, before and after storage, were evaluated for pertinent physical properties; the resultant values were then compared to determine the nature and extent of deterioration.

Development of fabrics for USAF summer uniforms using synthetic fibers.

R. M. Ellis, Jr. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Materials Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. July, 1952. 22 p. Available from Office of Technical Services, Washington 25, D. C. 75 cents.

Dacron polyester fiber was chosen as the principal constituent in this investigation because of its unusual properties. The manner in which this fiber would react when used in a uniform fabric and when blended with other fibers could not be determined by laboratory methods; therefore service wear tests were used.

Qualities of Dacron and cotton blends used in shirtings compared with all-cotton fabrics of similar construction.

J. B. Hawkins and P. E. Keeney. *J. Home Econ. 48:* 189-194 (March, 1956).

Advantages offered by blending of Dacron and cotton were (1) the maintenance of the original appearance and texture after repeated laundering; (2) the resistance to creasing or wrinkling and the ability to recover readily; and (3) the ease of laundering and finishing. Claims of superior dimensional stability and fabric strength were not substantiated. Tables. 6 references.

The relationship between the structural geometry of a textile fabric and its physical properties.

S. Backer, J. Zimmerman and H. W. Best-Gordon. *Textile Research J. 26:* 87-107 (February, 1956).

Consideration is given to the phenomenon of nesting between warp and filling yarns, as affected by the local helix angles of bent yarns. Lateral displacement of yarn segments is shown to follow from the asymmetric yarn pressures along the twill line. The effect of this displacement is to alter both the nesting angle and the local yarn twist. Changes in felting shrinkage, twill prominence, and yarn pull-out resistance occur with nesting and local tightening of yarn structure, and hence with selected combinations of twist and twill directions. Observations of the effect of twist-twill relationships are reported for worsted, rayon, and cotton fabrics. 17 references.

Relation between fabric deformation and fabric structure.

T. Eeg-Olofsson (Swedish Institute for Textile Research). *Ann. Sci. Textiles Belges No. 4:* 7-30 (December, 1955); *in English.*

At the Swedish Institute for Textile Research an investigation has been started concerning the construction of fabrics in relation to their textile use properties. The relation between deformation and structure was the first object of the studies. The behavior of the fabric was found by stretching cylindrical samples, whereby bi-axial stresses mutually perpendicular could be obtained and measured in warp and weft directions as well as on the bias. A fabric, woven from the same yarn in four different designs with unchanged warp and weft tensions, was studied first. Diagrams. Photographs.

Design in woven structure. Part 39. Effects in sponge weaves (continued).

D. C. Snowden. *Wool Rev. 27:* 35, 37 (February, 1956).

Wool felt—the original non-woven fabric.

Rohm and Haas Rptr. 14: 21-25 (January-February, 1956).

Manufacture and finishing of felt at Western Felt Works. Photographs.

Paper clothing.

Kimberly Clark Corp. *Paper Trade J. 140:* 44 (February 20, 1956).

K-2000, a new paper-fabric, is manufactured from a thread scrim and plies of cellulose wadding and can be made to conform to various specifications of strength, appearance, texture, water resistance, and flame resistance.

Wide, multiple needle tufting machines.

Super Tufter Machinery Co. Inc. *Skinner's Silk and Rayon Record 30:* 55-57 (January, 1956); *Textile Recorder 73:* 76, 80 (February, 1956).

The action of the Super Tufter machine for needle tufted floor coverings and pile furnishing materials is described and illustrated.

Cutting woven synthetic fabrics.

S. Kemper Ltd. *Plastics 20:* 352 (October, 1955). Through *BCIRA 35:* 804 (1955).

The instrument described cuts single sheets of woven, synthetic-fiber fabrics by means of an electrically-heated blade. Besides severing the threads, the cutter also heat seals the cut ends, thus preventing fraying and stretching of the edges of the fabric. It is known as the K.S. electric cutter.

FINISHING AND CHEMICAL PROCESSING D

Colloidally dispersed oxides for the industry.

K. Dithmar. *Textil-Praxis 10, No. 11:* 1134-1137 (1955); *in German.* Through *BCIRA 36:* 51 (1956).

The uses of aerogel suspensions of silicic acid (Soltex 14), aluminum oxide (Lepandin 20) and titanium dioxide (Darotin 20 S and 40 TO), prepared by the Degussa process, are reviewed.

Effect of laundering on shirts.

M. A. Grimes and C. A. Werman (Texas Agricultural Experiment Station). *(Letter to the editor). Textile Research J. 26:* 112-113 (February, 1956).

Strength loss, cellulose degradation, shrinkage, and visible signs of wear were greater for shirts laundered commercially than shirts laundered by household methods.

Ultrasonics in the textile industry.

Textile Ind. 120: 107-110 (March, 1956).

Description of ultrasonic transducers with laboratory results on use in dyeing and scouring. Photographs, diagrams.

CHEMICAL PROCESSES D 1

ACL-85, new active ingredient for bleaching and sanitizing agents.

R. G. Ditzel, P. G. Arvan and W. F. Symes (Monsanto Chemical Co.). *Soap and Chemical Specialties 32:* 125-129, 137-139 (February, 1956).

ACL-85 (trichloroisocyanuric acid) gives bleaching performance equivalent to sodium hypochlorite, is safe when misused on fabrics, and is cheaper than sodium hypochlorite.

The mechanical properties of cellulose fabrics treated with monomethylol and dimethylol ureas.

R. Steele and L. E. Giddings, Jr. (Rohm and Haas Co.). *Textile Research J. 26:* 116-123 (February, 1956).

The load-elongation properties, elastic stiffness, and stress relaxation of cotton and rayon fabrics treated with dimethylol and monomethylol ureas have been examined. Dimethylol urea, which is believed to be a cross-linking material on the cellulose, is much more effective than monomethylol urea, a non-cross-linking material, in changing the strength, ultimate elongation, stress relaxation, tensile recovery, and crease recovery of cotton. However, on rayon, there is no marked difference in the effectiveness of the two types of materials. The principal effect is a reduction in the rate and extent of flow and slippage which can occur during deformation. This results in an increase in tensile recovery which is responsible for improved crease recovery.

Characteristics of wash and wear cottons.

A. L. Lippert (Joseph Bancroft and Sons Co.). *Textile Research J. 26:* 128-135 (February, 1956).

The importance of proper evaluation of the properties of creaseproofed cottons for consumer acceptance is stressed. Data comparing the crease recovery properties of differently treated cottons is included.

Methods for delustering of textile fibers. Part 2.

E. Debus. *Textil-Praxis 10 No. 11:* 1157-1159 (1955); *in German.* Through *BCIRA 36:* 63 (1956).

Brief abstracts are given of patents (U. S., British, Swiss, German) concerned with delustering processes (1943-1953). Brief reference is also made to the use of oxides of metals and metalloids obtained in the form of aerogels.

Color and finishing problems in drycleaning.

J. Parsley (Philadelphia Textile Institute). *Am. Dyestuff Reptr. 45:* P128-P130 (February 27, 1956).

The author points out some of the more pronounced problems the public is encountering with fabrics in their end use, and suggests means by which they may be minimized or eliminated.

A method of accurate pH measurement that insures better pH control in wet processing.

L. S. Metcalfe. *Modern Textiles Mag. 37:* 48, 50 (February, 1956).

Catalysis in blended chemical finishes.

D. D. Gagliardi (Gagliardi Research Corp.). *Am. Dyestuff Reptr. 45:* P99-P104 (February 13, 1956).

A discussion is presented on the theory and mechanism of catalysis of various chemicals used by the textile-finishing industry with special emphasis on the practical problems facing the textile finisher if he is not warned of the specific nature of the products or the catalysts that are recommended for his use.

Review of three recent developments in flame-retardant treatments for cotton.

J. D. Reid (Southern Regional Research Laboratory). *Textile Research J. 26:* 136 (February, 1956).

Work on (1) combination of the bromoform adduct polymer of triallyl phosphate with THPC resins, (2) bromine containing phosphonitrilates, and (3) combinations of these with THPC resins is reviewed in three separate papers (see following abstracts).

A compounded flame retardant for cotton fabrics.

J. D. Reid, J. G. Frick, Jr. and R. L. Arceneaux (Southern Regional Research Laboratory). *Textile Research J. 26:* 137-140 (February, 1956).

A combination of two existing flame retardants, THPC and the bromoform-triallyl phosphate polymer, produces a flame-retardant finish for cotton which is superior to that of either finish alone. Fabrics 8 oz. or heavier are made highly flame-resistant. The finish is durable and employs a single treating bath with a simple finishing procedure.

Cotton made flame-resistant with bromine-containing phosphonitrilates in combination with THPC resins.

C. Hamalainen, W. A. Reeves and J. D. Guthrie (Southern Regional Research Laboratory). *Textile Research J. 26:* 145-149 (February, 1956).

A permanent-type flame retardant based on a bromoform adduct polymer of allyl phosphonitrilate in combination with THPC resin has been developed for use with cotton fabrics. The combination flame retardant is applied to fabrics from aqueous emulsion using conventional textile finishing equipment. The flame retardant is very efficient; 8-oz. twill and sateen are made highly flame-resistant with as little as 13% resin add-on.

Bromine-containing phosphonitrilates as flame retardants for cotton.

C. Hamalainen and J. D. Guthrie (Southern Regional Research Laboratory). *Textile Research J. 26:* 141-144 (February, 1956).

Bromine-containing derivatives of phosphonitrilic chloride were investigated as possible durable flame retardants for cotton fabrics. These, including brominated allyl phosphonitrilate, 2, 3-dibromopropyl phosphonitrilate, and the bromoform adduct polymer of allyl phosphonitrilate, were applied to cotton fabrics as polymeric products from organic solvent or from aqueous emulsions. Evaluation tests on tear strength and the durability of the flame resistance to laundering were made.

A theory of flame-retardant finishes.

I. M. Gottlieb (Textile Research Institute). *Textile Research J. 26:* 156-167 (February, 1956).

A survey of the newer flame retardants suggests a simple theory for their constitution. The molecule should be water-insoluble to achieve durability in laundering. A solvent-soluble organic molecule is therefore proposed. The orthophosphate group should be present in the molecule to dehydrate catalytically the cellulose substrate. The molecule should contain polymerizable groups to effect a permanency of finish. The molecule should contain halogen or other groupings to reduce the flammability of the gases of decomposition. The influence of other factors such as fabric weight and finish is discussed. 18 references.

Modern flocking installations.

A. Franken. *Textil-Rundschau 10, No. 11:* 593-603 (1955); *in German.* Through *BCIRA 36:* 62 (1956).

In this review, the author discusses the history of flock application to fabrics, paper, etc., the principles of static electricity, new electrostatic flocking methods and modern machines therefor, and flocking material, adhesive and application of the adhesive.

The kier boiling of cotton piece goods.

Textile Recorder 73: 56-58 (March, 1956).

Brief review of kiering operations followed by discussion of the effect of kiering on the cotton fiber. 6 references.

Launderable textiles in 1955.

G. H. Johnson (American Institute of Laundering). *Am. Dyestuff Reptr. 45:* P122-P128 (February 27, 1956).

The laundering qualities of washable textiles depend largely upon how a given fabric is constructed, dyed, and finished, and upon the end use to which that fabric is put. Laundering methods and problems encountered with resin-finished textiles and synthetic fibers are discussed.

The fastness to light of optical whitening agents.

C. J. Pinte and P. Rochas. *Ann. Sci. Textiles Belges No. 3:* 168-188 (1955); *in French.* Through *BCIRA 36:* 59 (1956).

Exposure tests under varying irradiation conditions showed that the degradation rate is little affected by the wavelength in the visible range. Yellowing of optically-bleached fabrics exposed to light is essentially due to the disappearance of fluorescence (apparent yellowing), except in the case of nylon which shows, in addition to the loss of fluorescence, some true yellowing.

The mercerization of cellulose. Part 4. Phase transition studies on technical wood pulps and cotton linters.

B. G. Ranby and H. F. Mark. *Svensk Papperstidn. 58:* 374-382 (May 31, 1955); *in English.*

The effect of chemical treatment of fabrics on the structure and properties of the fibers.

E. G. Eiges. *Tekstil. Prom. 15, No. 7:* 22-24 (1955); *in Russian.* Through *BCIRA 36:* 64 (1956).

The classical method of bleaching cotton fabric considerably decreases the elastic elongation of the fiber, its strength and resistance to abrasion. Hydrogen peroxide bleaching, as well as treatment with monochlorurea, has a more favorable effect on the properties of the cotton fiber. Treatment of the cotton fabric (bleached by boiling with alkali) with a 6 per cent solution of melamine-formaldehyde resin greatly reduces the elastic elongation of the fiber and decreases its strength. The treatment improves, however, the physico-chemical properties of cellulose hydrate fibers, whose low tensile strength, especially in the wet condition, depends upon the sub-microscopic discontinuity of the structure along the fiber axis. The formation of intermolecular linkages as a result of the melamine-formaldehyde treatment can be experimentally proved by infra-red spectroscopy, showing the appearance of additional absorption bands in the spectrum. The treatment is also of advantage for spun rayon fabrics.

The effect of chlorine and subsequent treatment with sodium bisulfite upon the physical properties of cotton fabrics treated with various resins.

J. H. Howard (Cranston Print Works Co.). *Textile Research J. 26:* 124-128 (February, 1956).

A study has been made of the effect of chlorine on the tensile strength, tear strength, and crease resistance of mercerized, 80 x 80, 39-in., 4.00-weight, white cotton cloth treated with three types of thermosetting resins, one of which was a straight urea-formaldehyde type, another belonged to the melamine-formaldehyde group, and the remaining was of the imidazolidone-formaldehyde class. Included in this work is the effect of sodium bisulfite on the aforementioned physical properties of the prescribed fabric treated with the indicated resins and subsequently subjected to chlorine treatment. 5 references.

Variables of cure in the resin finishing of cotton.

S. H. Foster (Monsanto Chemical Co.). *Textile Research J. 26:* 149-155 (February, 1956).

Cure temperature, cure time, and catalyst amount have been investigated for a cyclic ethylene-urea resin and for a methylated trimethylolmelamine. The cure temperature has the most profound effect. Catalyst amount has a mild effect particularly at low concentrations of resin solids but is of less importance above 10% catalyst on the resin solids. Time of cure above 1½ min. (on 80^2 cotton) has no effect with either dimethylol cylic ethylene urea or a methylated trimethylolmelamine. In addition, when these resins are properly cured on cotton fabric, good durability of properties to washing is readily achieved.

Modern woolcombing theory and practice. Part 2. Wool scouring systems.

R. Walker. *Textile Mfr. 82:* 78-80, 83 (February, 1956).

The author discusses the desuintage system, the solvent system, the emulsion system and the Duhamel system and some of the serious faults caused by bad scouring such as discoloration, tendering, harsh handle, etc.

Shrinkage of cotton fabrics.

O. Innemann. *Textil-Praxis 10, No. 11:* 1127-1130 (1955); *in German.* Through *BCIRA 36:* 72 (1956).

Factors causing the shrinkage of cotton fabrics are reviewed and processes preventing it are discussed, e.g. treatment with caustic soda solution, the Sanforizing process, and impregnation with synthetic resins. Reference is also made to testing methods for determining the shrinkage of fabrics during washing.

Some recent developments in textile finishing.

B. C. M. Dorset. *Textile Mfr. 82:* 88-92 (February, 1956).

The article reviews (1) the treatment with N-methoxymethylpolyamide derivatives of cotton, wool, rayon, and synthetic fibers to give them improved properties such as increased resistance to abrasion, slippage, fraying and shrinkage, and to confer on them higher tensile strength and anti-static characteristics; (2) a modification of the Lanaset process for applying melamine ether resins to wool materials to make them resistant to shrinkage during washing; (3) aminotriazine derivatives for conferring water repellency; (4) anti-static agents based on certain quaternary phosphonium salts; and (5) a new method of making shrink resistant multi-ply fabric so that the layers of fabric are compressively shrunk at the time that the bonding together of the fabrics is initiated or effected. 7 British patents relating to these processes are cited.

The deposition of polyacrylonitrile in wool. Part 2. Properties of wool containing internal deposits of polyacrylonitrile.

L. Valentine (Leeds Univ.). *J. Textile Inst. 47:* T1-T15 (January, 1956).

The properties of wool fibers and flannel containing internal deposits of polyacrylonitrile are examined. Such wools have considerably enhanced resistance to solvents such as peracetic acid-ammonium hydroxide or aqueous sodium sulfide, and show only a slight Allworden reaction. The elastic properties of the fibers are virtually unaffected, although small increases or decreases in the work-to-stretch 30% may be noted, depending on the biological type of the fiber. There is a slight improvement in the resistance to abrasion, and a considerable improvement in the resistance to milling shrinkage, which can be reduced to about 3%, compared with 30% for untreated wool, by the presence of about 20% of polyacrylonitrile. A reduction in the regain is also found. The reasons for these alterations in properties are discussed, and it is suggested that chemical grafting of the polyacrylonitrile to the wool may be partly responsible. 20 references.

DYEING AND PRINTING D 2

Diazotization and coupling of duPont Naphthanil bases.

DuPont Tech. Bull. 11: 170-173 (December, 1955).

Better solubility of duPont Napthanil bases and improved stability of subsequent diazotized solutions is obtained by changing the procedure and quantities of chemicals previously recommended.

Dyeing of synthetic fibers: a brief review of recent developments.

A. J. Hall. *Hosiery Times 29:* 79-81 (February, 1956).

Garment dyeing in the United States today.

A. Teichner (Almore Dye House, Inc.). *Am. Dyestuff Reptr. 45:* P131-P133 (February 27, 1956).

The four principal methods of dyeing, direct, union, developed, and vat, and the difficulties of processing some of the new synthetics, particularly when they are in combination with natural fibers, are discussed. Proper temperature ranges for the successful handling of specific fibers and mixtures and several specific formulas for dyeing various types of Orlon and blends are given.

Investigation into the equilibrium dyeing of cotton fibers with direct dyes.

P. V. Moryganov and B. M. Melnikov. *Tekstil. Prom. 15, No. 8:* 33-36 (1955); *in Russian.* Through *BCIRA 36:* 60 (1956).

The study shows the complete reversibility of the interaction between cellulose and direct dyes. The theoretically calculated quantity of dye on the fiber, according to its thermodynamical characteristics, corresponds to the amount found experimentally. The affinity of the dye for cellulose fibers is a purely energetic characteristic and depends on the structure of the dye molecule.

Coloring rags and waste. Part 2. Stripping and re-dyeing.

Dyer 115: 193-195 (February 3, 1956).

Following a review of the machinery to be used is a discussion of the application of logwood black.

Coloring rags and waste. Part 3. Re-dyeing carbonized wool rags.

Dyer 115: 259-260 (February 17, 1956).

Methods of stripping chrome dyed goods and

choice and application of dyestuffs for re-dyeing are covered.

Shades on Courpleta triacetate fiber.

DuPont Tech. Bull. 11: 174-175 (December, 1955).

Formulations and dyeing procedures are given for duPont dyes applicable to both bright taffeta and dull locknit fabrics of Courtaulds Courpleta.

Dyeing and heat treatment of Arnel triacetate.

F. Fortess and others (Celanese Corp.) *Am. Dyestuff Reptr. 45:* P88-P94, P105 (February 13, 1956).

Special problems in the dyeing of Arnel blends with cotton, rayon, nylon, wool and Dacron are discussed and the level of achievement illustrated. The basis for the selection of disperse (acetate) dyes and the effective use of dyeing accelerants is discussed in some detail. The heat treatment of Arnel-containing fabrics is an essential requirement for the attainment of improved colorfastness as well as for the modification of the thermal properties of the Arnel component with respect to glazing resistance, dimensional stability, and ironing properties. Existing heat-treatment processes and their specific attributes and limitations are discussed. 3 references.

Thermosol method for dyeing blends of Dacron and cellulosic fibers.

DuPont Tech. Bull. 11: 157-166 (December, 1955).

In the Thermosol application of dyes to a blend of 65% Dacron and 35% cotton, three methods are listed and explained in order of preference. Fastness ratings and some application properties are included in a table as guides for the selection of disperse dyes. Data depicting vat dye characteristics are also tabulated.

New products: Latyl Carrier A.

DuPont Tech. Bull. 11: 149-156 (December, 1955).

The application of Latyl Carrier A, Latyl Developer B solution, and Latyl Blue RB in the dyeing of 100% Dacron and Dacron blends is described.

Staining of wool-Dacron and wool-acetate blends by disperse dyes.

DuPont Tech. Bull. 11: 176-179 (December, 1955).

Operating a woolen dyeing plant.

Textile Recorder 73: 53-55 (March, 1956).

A brief survey of British woolen dyeing plant operation and its major problems.

Pressure dyeing and drying in a closed system as compared to dyeing and drying in an open system.

F. Thies (B. Thies Co., Coesfeld, Germany). *Am. Dyestuff Reptr. 45:* P95-P98 (February 13, 1956).

The author deals primarily with the drying of cross-wound packages. Following a brief consideration of the package itself, he discusses drying methods employing tray dryers and hot-air circulation dryers of the open and closed types, listing advantages and disadvantages of each system. A new, high-pressure, closed circuit dryer is covered in detail. The latter part of the paper deals with the dyeing of packages under static pressure.

Are you up-to-date on package dyeing?

A. P. Roy. *Textile Bull. 82:* 91-95 (February, 1956).

Brief review of methods and machinery for pressure dyeing, with a note on yarn package preparation.

Fluorinated aminoanthraquinone dyes.

J. B. Dickey and others (Tennessee Eastman Co.). *Ind. Eng. Chem. 48:* 209-213 (February, 1956).

As part of a program of preparing superior light- and gas-fast dyes for cellulose acetate, a considerable number of azo and anthraquinone dyes which contain fluorine were prepared. This paper describes the synthesis of two series of dyes which illustrate the effect of fluorine atoms in the alkylamino group of alkylaminoanthraquinones and of a trifluoromethyl group in the 2- position on the nucleus of aminoanthraquinones. 26 references.

Solvent soluble dyes as a cause of fading in dry cleaning.

C. H. Bayley and A. S. Tweedie (Laundry, Dry Cleaning and Textile Research Laboratory, Ottawa). *Can. Textile J. 73:* 57 (February 10, 1956).

A study of the two-phase printing method for vat dyes, with special reference to thickeners and printing dye standards.

G. Bernardy and W. Küppers. *Textil-Praxis 10, No. 11:* 1137-1146 (1955); *in German.* Through *BCIRA 36:* 62 (1956).

The latest developments in the two-phase printing process for vat dyes (the Colloresin process) are discussed, and special attention is drawn to the advantages of this process over the more complicated Rongalite C-potash process. Techniques for carrying out the process and its applications are reviewed, with reference to the specific

properties of suitable thickening agents, consistency, preparation and storage properties of the printing pastes, printing and drying.

Equipment, installation and organization of the dyehouse in a textile printing plant. Part 5.

H. Dietz. *Textil-Praxis 10, No. 11:* 1147-1151 (1955); *in German.* Through *BCIRA 36:* 61 (1956).

The author describes benches and shelves, containers for printing pastes and thickeners, auxiliary devices and transport means, and supply and preparation of water, listing the names of the manufacturers. Brief reference is also made to the management of the printing plant.

MECHANICAL PROCESSES D 3

Sandblasting as a new technique in fabric finishing?

A. Johnson. *Textile Mfr. 82:* 59-60 (February, 1956).

A brief account of the results obtained in experiments during which various types of woven fabrics and one knitted specimen were submitted to sandblasting treatment. The writer mentions this technique as an alternative to raising by teazels.

DRYING D 4

How to operate dryers efficiently Part 2.

L. Walter. *Textile Bull. 82:* 96-99 (February, 1956).

Engineering analysis for determining where improvements are indicated. Diagrams.

TESTING AND MEASUREMENT E

How to use ultraviolet light in the textile industry.

Textile Ind. 120: 137-140 (March, 1956).

The use of ultraviolet units to inspect for off-standard quality, to pick up normally invisible identifying and coding additives, and for analytical identification is briefly discussed. Photographs.

Lay-out of specifications for textile materials (revised).

J. Textile Inst. 47: P62-P65 (January, 1956).

A special panel set up by the Unification of Testing Methods Committee of the Textile Institute has drawn up a standardized lay-out for specifications to be used by a purchaser who buys appreciable amounts of material over a long period to lay down conditions which the materials must fulfil if they are to be acceptable.

Industrial statistics.

W. Volk (Hydrocarbon Research, Inc.). *Chem. Eng. 63:* 165-190 (March, 1956).

A review of the statistical tools used for industrial applications, including measures of averages, variation, significant differences, correlation, analysis of variance, and sequential sampling, in convenient and compact form. Formulas and examples of actual applications illustrate each type of problem. A list of statistics texts and references is included.

Textile calculations.

N. C. Gee. British Continental Trade Press Ltd., 222 Strand, London, W.C.2, England., 1955. 280 p. $2.94.

Calculations involved in problems of blending, carding, spinning, winding, warping, twisting, weaving, designing, and testing are described, together with explanations, examples, and exercises. Originally appeared as a series of papers in *Textile Manufacturer.*

FIBERS E 1

Air flow through plugs of textile fibers. Part 2. The Micronaire test for cotton.

E. Lord (Shirley Institute). *J. Textile Inst. 47:* T16-T47 (January, 1956); *Shirley Inst. Mem. 28:* 289-320 (October, 1955).

A study is made of the various factors influencing the values obtained from Micronaire tests made on samples of cotton. It is shown that both fiber fineness and maturity affect the measurements and a calibration of the scale of the instrument is made in terms of a simple function of these two quantities. The interpretation of Micronaire results is discussed. Applications of the test to mill checking of cotton quality, and to cotton breeding, are considered with particular reference to the problems arising from the dependence of Micronaire test values on fiber fineness and maturity. The nature of variation in Micronaire values associated with particular aspects of test procedure, and with differences occurring between samples, between bales and within bales, is investigated in detailed statistical appendices. Estimates are given of the values of standard deviation associated with the different sources of variance. 10 references.

Method of test for trash content of cotton by means of the Shirley Analyzer.

J. Textile Inst. 47: P20-P27 (January, 1956).

Tentative Textile Standard No. 35, 1955. A shortened method, useful when large numbers of

tests are required, is also described.

How to evaluate the results of the Arealometer.

D. De Meulemeester, G. Raes and T. Fransen. *Ann. Sci. Textiles Belges No. 3:* 260-294 (1955); *in French.* Through *BCIRA 36:* 69 (1956).

After a short description of the principles on which the Arealometer is based, the authors show the effect of the fiber volume introduced into the apparatus, in the case of circular fibers as well as fibers with varying lumen (e.g. cotton). It is contended that the lumen accounts for an appreciable fraction of the fiber volume, and, therefore, a fiber plug less than 152 mg should be used in order to obtain correct results. It is also shown that the difference D, given by the Arealometer on cotton fibers, is not due simply to their maturity.

Study on the variations of sections of cotton fibers.

C. Lutz and G. Cuvelier. *Ann. Sci. Textiles Belges No. 3:* 244-259 (1955); *in French.* Through *BCIRA 36:* 69 (1956).

The thickness micrometer of the Uster apparatus for measuring the length of textile fibers was used to prove that the sections of cotton fibers vary over their whole length.

The vibroscope.

M. M. Cross and G. Grimshaw. *Hexagon Digest No. 22:* 36-39 (October, 1955).

The vibroscope is an instrument used for the measurement of the mass per unit length of single textile fibers. It is particularly useful when the fibers to be measured are short in length, like staple fibers. Features and use of the vibroscope designed for the Dyehouse laboratories of Imperial Chemical Industries are described. 2 references.

Improved rapid scheme for the detection of the current textile fibers.

C. H. Fischer- Bobsien. *Z. ges. Textil-Ind. 57, No. 21:* 1410-1412 (1955); *in German.* Through *BCIRA 36:* 34 (1956).

The scheme comprises a pretreatment of the fibers with boiling concentrated hydrochloric acid to separate (a) the soluble, decomposed, or completely deformed fibers from (b) the insoluble portion, and dry distillation of (a) to separate cellulose from protein fibers. Reagents are listed for the detection of cellulose (acetate, cuprammonium, viscose, cotton and linen) and protein fibers (degummed and raw silk, Tussah, fibroin silk, casein and soya fibers, and wool) and solvents are enumerated for the synthetic fibers insoluble in hydrochloric acid.

Automatic balance for measurement of the strength of glass fibers.

D. Sinclair (Johns-Manville Research Center). *Rev. Sci. Instr. 27:* 34-36 (January, 1956).

The semiautomatic balance used to measure the tensile strength and Young's modulus of glass fibers when bent into a loop has been made fully automatic. A differential transformer and servomotor are used to apply chain-weight as the tension in the looped fiber is increased by the loading motor. All measurements needed to calculate the tensile strength and Young's modulus are automatically recorded on the drum chart driven by the loading motor. The maximum tensile stress in the looped fiber at the instant of break is proportional to the vertical motion of the recording pen, and the maximum strain is proportional to the rotation of the drum.

The degree of cotton maturity and its effect on nep formation during carding.

F. Schulte. *Z. ges. Textil-Ind. 57, Nos. 22/23:* 1481-1482 (1955); *in German.* Through *BCIRA 36:* 69 (1956).

The methods for testing cotton maturity are briefly mentioned and the values obtained are related to the number of neps per 20 sq. inches, and statistically evaluated by means of a nep control card.

YARNS E 2

Dynamic continuous tests on tire cord.

W. Wegener and W. Falch. *Reyon Zellwolle Chemiefasern No. 8:* 542-550; *No. 9:* 613-618 (1955); *in German.* Through *BCIRA 35:* 814 (1955).

Results of earlier testing methods for determining the strength and elongation properties of tire cords are compared with those obtained from dynamic measurements on cords made by three different spinning methods. 41 references.

Rapid calculation of yarn irregularity.

A. Martin. *Industrie Textile:* 737-741 (October, 1955); *in French.* Through *BCIRA 36:* 36 (1956).

Three methods for calculating the yarn irregularity from dynamometric measurements (determination of the average and sub-average strength, determination of the mean deviation or linear scattering, and determination of quadratic scattering) are described, and a formula is given, by means of which it is possible to assess fairly accurately the nature of yarn irregularity within a relatively short time.

Regularity tests in the running thread by means of the Viviani and Freha apparatus. Part 2.

G. Lindner and M. Lorenz. *Textil- u. Faserstofftech. 5, No. 10:* 546-548 (1955); *in German.* Through *BCIRA 36:* 36 (1956).

The Viviani yarn-regularity tester (manufactured by Kipp, Delft, Holland) was thoroughly examined and it was found that the apparatus has certain disadvantages resulting from the construction of the recording device. The tester was, therefore, fitted with a new electronic recording device for measuring the count variations in a capillary and consists now of a glass vessel with capillary, an amplifier, and a curve recorder. It can be assembled in a normally climatized test room; there is no necessity of working in a darkroom (developing, fixing, drying), and it is possible to test any yarn length and record the results directly in the form of a curve. By combining the modified Viviani apparatus with the Freha regularity tester it is possible to determine the external and internal yarn irregularity during passage of the thread.

Winding under constant tension in textile testing.

O. Becker. *Z. ges. Textil-Ind. 57, No. 21:* 1357-1362 (1955); *in German.* Through *BCIRA 36:* 36 (1956).

The small electrically-driven laboratory Elfa reel, which winds the yarn at an adjusted tension, makes it possible to take samples from any machine in operation regardless of its speed. Yarn samples of woven and knitted fabrics can be easily reeled off and used (without having lost their properties) on a testing machine. Several tests can be carried out consecutively on the same yarn. Winding of the thread around the delivery rollers of testing machines for continuous filaments, e.g. dynamometers or yarn-regularity testers, is eliminated. The reel is described and illustrated.

New experiences with the Schumacher harp strength tester.

N. Reinfeld. *Melliand Textilber. 36, No. 10:* 988-991 (1955); *in German.* Through *BCIRA 35:* 814 (1955).

A study of the processes taking place during breaking of yarn bundles consisting of *n* fibers has shown that the mean tensile strength of the fibers can be determined from the data given by the Schumacher harp tester only if the single threads show straight stress-elongation curves and if all the threads break at the same elongation or at the same breaking load. Such conditions do not occur in practice. The mean elongation at break can be determined with sufficient accuracy, from the data recorded, with the help of the probability diagram, provided that the individual yarn breakages occur during the test successively and show a normal Gaussian distribution.

The swelling anisotropy. Part 3. Swelling anisotropy and elongation on wetting. Applications.

C. J. Pinte, P. Rochas and J. Henno. *Bull. Inst. Textile France No. 55:* 7-22 (August, 1955); *in French.* Through *BCIRA 36:* 68 (1956).

The differential coefficient of swelling anisotropy can be derived from elongation measurements of a yarn as a function of its water content. In the case of viscose rayon, the coefficient of anisotropy can be determined from a single measurement of the wet elongation in a yarn conditioned at 65% R.H. and 20°C.

Control of fiber distribution in yarn in the case of mixtures.

J. A. Jacquemart and P. Kassenbeck. *Ann. Sci. Textiles Belges No. 3:* 196-210 (1955); *in French.* Through *BCIRA 36:* 71 (1956).

The method described consists in embedding the yarn, in the form of a coil of known diameter, in the methyl methacrylate monomer and, after polymerization, cutting the mass obtained along the axis into thin sections to be examined under the microscope. The examination of the sections makes it possible to check the number of fibers in the yarn and the distribution of various components (number and position). The rate of preparation, for a series of 4,000 sections, is of the order of 15 seconds per section. The preparations can be easily numbered and dyed to facilitate evaluation of the blend quality or of the sizing action. The interpretation of the results is simple and permits statistical control of the yarn.

FABRICS E 3

Paper-chromatographic examination of wool-polyamide fiber blends.

H. H. Bühler and H. Zahn. *Melliand Textilber. 36, No. 10:* 980-981 (1955); *in German.* Through *BCIRA 35:* 814 (1956).

Mixtures of wool and synthetic polyamide fibers (100 g) were subjected to hydrolysis with 6N hydrochloric acid and the hydrolysates, in the form of 10 per cent aqueous solutions, were examined by two-dimensional paper chromatography, with a mixture of secondary butanol, formic acid and water (75:15:10) as first solvent and a mixture of 80 per cent phenol and 20 per cent water as second solvent. The method described makes it possible to determine, in fiber blends,

even small percentages of polyamide fibers (Perlon and nylon). The *RF* values of the hydrolysis products of wool and polyamides are tabulated and some paper-chromatograms are shown.

Weft bars and other defects.

W. A. Richardson (Shirley Institute). *Textile Merc. 134:* 234-236, 241 (February 10, 1956).

Lecture on some recent Shirley Institute experiments on methods of identifying and determining fibers in blends and determinations of tolerance in the composition of a blend for a satisfactory yarn.

Effects of syndets on colorfastness to washing.

P. J. Fynn. *Am. Dyestuff Reptr. 45:* P136 (February 27, 1956).

Report of the AATCC Washfastness Committee.

The achievement of high wear-performance in rayon staple fabrics with crease-resist finishes.

H. W. Best-Gordon and T. H. Morton (Courtaulds Ltd). *J. Soc. Dyers Colourists 71:* 874-883 (December, 1955).

Details are given of practical wear-assessment of crease-resist-finished rayon staple fabrics with the new Bocking Testing Machine (BFT Mark III). The machine determines resistance to flexing and to ball penetration; from these a duty factor is derived which correlates very well with resistance to premature wear. Details are given also of the preferential resin pick-up of one fiber over another in blend fabrics, and the duty factors of an *ad hoc* series of satisfactorily produced gabardines. The effects are described of some substances added to urea-formaldehyde resins for the purpose of producing various finishes on all-viscose rayon staple gabardines, and their effects on the duty factor are also discussed. Finally, various conditions in the resin treatment of long-staple rayon fabric and their effects on wear-performance assessed by the duty factor are considered in detail. 4 references.

Damage caused by retained chlorine.

Am. Dyestuff Reptr. 45: P135-P136 (February 27, 1956).

Report of the AATCC Committee.

Methods of test for bow and skewness in woven fabric.

J. Textile Inst. 47: P28-P31 (January, 1956).

Tentative Textile Standard No. 36, 1955.

Standard method of test for resistance to penetration by water of fabrics permeable to air: hydrostatic head test.

J. Textile Inst. 47: P32-P34 (January, 1956).

Tentative Textile Standard No. 37.

Report on inter-laboratory hydrostatic head tests.

J. Lord (Shirley Institute). *J. Textile Inst. 47:* P35-P40 (January, 1956).

The procedure laid down in British Standards Handbook No. 11 (Tentative Textile Standard No. 37 for determining resistance to penetration by water of fabrics permeable to air) was found capable of giving reproducible results.

The hydrostatic head test for water-repellent fabrics.

J. Lord (Shirley Institute). *J. Textile Inst. 47:* P41-P61 (January, 1956).

The hydrostatic head test is discussed with particular reference to the effects of variations in the arbitrary conditions. These include the size of the test specimen, the rate of increase of water pressure, the temperature of the water used for the test, the cleanliness of the water, and the choice of the end-point. Provided that the arbitrary conditions are adequately controlled and the cleanliness of the water is maintained, it is found that three different types of apparatus give concordant results. 9 references.

Tension presser for rayon fabrics.

United States Testing Co., Inc. *Fibres 17:* 17-19 (January, 1956).

A series of experiments has been carried out with a versatile tension presser for rayon fabrics. The tests and results are described.

The fastness assessment of textile dyestuffs.

Imperial Chemical Industries Ltd., Manchester, 1954. 80 p.

This manual describes testing methods for evaluating (a) the degree to which a fabric will withstand exposure to light and (b) its fastness to various wet processes. 21 test methods accepted by the sub-committee of the International Organization for Standardization (I.S.O.) are included.

The scale of blues. Means for determining the stability of textiles to light.

W. Schulke. *Rayonne et Fibres Synthet. 11, No. 9:* 1491-1500; *No. 10:* 1622-1638 (1955); *in French. Reyon Zellwolle Chemiefasern No. 7:* 471-473; *No. 10:* 691-696 (1955); *in German.* Through *BCIRA 36:* 34 (1956).

The necessity of finding a comparative scale, permitting the control and limitation of light-exposure time so as to obtain consistent results as regards the light-degradation of various textile fibers, led to the development of the scale of blues by the DEK. The suitability of the simple method was investigated by carrying out comparative tests, the results of which are reported in this paper. By using the scale of blues and a standard fiber, good agreement has been found between exposures during different periods of the year to permit comparison of the light tendering of textile fibers based on different raw materials. The method proved satisfactory even under varying climatic and atmospheric conditions. The search for a standard fiber suitable to represent all textile fibers is being continued.

A review of calibration of fading lamps used in Canada.

Textile Technical Federation of Canada. Montreal, 1955. 8 p. (Technical Bulletin, No. 2). Through *BCIRA 36:* 72 (1956).

The answers to a questionnaire on lightfastness testing and the results of an inter-laboratory comparison are summarized. The study was made by the Committee on Test Methods of the Canadian Association of Textile Colourists and Chemists.

Estimation of free formaldehyde in resin-treated cotton fabrics.

J. H. Howard (Cranston Print Works). *Am. Dyestuff Reptr. 45:* 53, 57 (January 30, 1956).

A simple method for estimating free formaldehyde in resin-treated cotton fabrics is presented. The technique involves ethanol-water extraction of the fabric followed by potentiometric neutralization of the extract to pH 7.0, treatment with hydroxylamine hydrochloride, finally neutralizing to pH 3.40 potentiometrically with N/10 NaOH, and calculating the results obtained. 3 references.

Accelerated washfastness tests as suitable end-use tests for consumer goods.

P. J. Fynn. *Am. Dyestuff Reptr. 45:* P134 (February 27, 1956).

Report of the AATCC Washfastness Committee.

OTHER E 4

Concentration determination of surface-active textile assistants in aqueous solutions.

H. Schwerdtner. *Textil- u. Faserstofftech. 5, No. 10:* 569-572 (1955); *in German.* Through *BCIRA 36:* 38 (1956).

Methods for determining anionic and cationic surface-active agents in aqueous solutions are reviewed, and the author's own method is described (titration with Rose Bengale as indicator) which is especially applicable to the quantitative determination of aliphatic anionic substances with 10-20 carbon atoms in their chain. Practical examples are given and results are tabulated. 20 references.

Water determination in textile assistants by the Karl Fischer method.

W. Vauck and K. Kallies. *Textil- u. Faserstofftech. 5, No. 10:* 575-577 (1955); *in German.* Through *BCIRA 36:* 38 (1956).

The method, solutions, reaction mechanism, apparatus and titration, and application of the method to the determination of water in textile assistants are described. Soaps, fatty alcohol sulfonates, protein condensates and polyglycol ether products, as well as solvents, mineral oils, paraffins, fats and oils, do not interfere in the titration. It is only necessary to determine qualitatively free alkali, soda, peroxides and aldehydes, ketones, and strong amines in preliminary samples, as they may react with the Karl Fischer solution and make impossible the direct water determination in methanol solution.

Characterization of nonionic detergents.

A. B. Steele and L. D. Berger, Jr. (Union Carbide and Carbon Corp.). *Soap and Chemical Specialties 32:* 48-50 (February, 1956).

The gravimetric, colorimetric and titration methods for estimating the amount and chemical nature of nonionic agents are compared to the modified ethoxyl procedure which relates the "cloud point" with the apparent density. 5 references.

Non-destructive mechanical test for degradation.

C. D. Doyle and C. S. Duckwald (General Electric Co.). *Modern Plastics 33:* 143-148, 153-154 (March, 1956).

A low-amplitude vibrational test proved satisfactory as a non-destructive method for measuring the decline of mechanical properties during heat-aging of a glass cloth laminate made with a triallyl cyanurate polyester.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

Cotton bale tie means.

H. M. Donaldson and W. D. Hebern. USP 2 736 078, February 28, 1956.

YARN PRODUCTION B

Textile fiber greasing or oiling agent.

Boehme Fettchemie GmbH (Germany). BP 732 372, June 22, 1955. Through *BCIRA 36:* 18 (1956).

Apparatus for crimping tow or yarn.

W. D. Hay (to Alexander Smith, Inc.). USP 2 734 228, February 14, 1956.

Apparatus for crimping yarn.

E. H. Shattuck (to Joseph Bancroft & Sons Co.). USP 2 734 229, 252, February 14, 1956.

Apparatus for crimping yarn.

L. W. Rainard and E. H. Shattuck (to Joseph Bancroft & Sons Co.). USP 2 734 251, February 14, 1956.

Yarn stretching device.

R. H. Carter (to North American Rayon Corp.). USP 2 735 160, February 21, 1956.

Means for stretching cords, yarns and the like.

A. E. Herbert, J. Woods and R. Turner (to John Bright & Brothers Ltd.). USP 2 736 944, March 6, 1956.

OPENING, PICKING, FIBER PREPARATION B 1

Cotton fiber blender.

W. J. Martin and J. E. Larrison. USP 2 734 230, February 14, 1956.

CARDING AND COMBING B 2

Combing machine.

A. Boer (to Brillotex Argentina S.A.). USP 2 734 231, February 14, 1956.

Card clothing.

E. E. Fournier. USP 2 735 140, February 21, 1956.

Lifting device for installing and removing card licker-in rolls.

C. Y. Bumgardner (to Springs Cotton Mills). USP 2 735 648, February 21, 1956.

DRAWING AND ROVING B 3

Stop mechanisms for drawing frames and similar textile machines.

J. P. Mackie (to James Mackie and Sons Ltd). BP 732 549, June 29, 1955. Through *BCIRA 36:* 53 (1956).

The invention relates to a modification of the stop-motion covered by BP 706 192.

Simultaneous control of the tension of the driving belts of drawframes, web-dividers and other textile machines.

Spinnbau GmbH (Germany). BP 732 828, June 29, 1955. Through *BCIRA 36:* 53 (1956).

Spinning and roving frames and drawing apparatus.

K. Ward (to Fairbairn Lawson Combe Barbour Ltd). BP 732 939, June 29, 1955. Through *BCIRA 36:* 54 (1956).

Apparatus for drafting textile fibers.

P. T. Bodell (to Collins & Aikman Corp.). USP 2 734 232, February 14, 1956.

Drawing rolls.

R. C. Berker. USP 2 734 233, February 14, 1956.

Condenser supports (drafting mechanism).

P. B. Tarbox (to Saco-Lowell Shops). USP 2 735 141, February 21, 1956.

An endless looped clearer belt for drafting rolls.

D. G. Noiles (to Saco-Lowell Shops). USP 2 735 142, February 21, 1956.

Buffing attachment for drawing rolls.

K. P. Swanson (to Progressive Engineering, Inc.). USP 2 735 234, February 21, 1956.

Apparatus for coiling sliver in cans.

G. Forsythe and H. W. Russell (to Pacific Mills). USP 2 736 071, February 28, 1956.

Tension device for a tape condenser.

G. C. Truslow and J. D. Truslow. USP 2 736 927, March 6, 1956.

SPINNING, WINDING, TWISTING B 4

Bobbin supporting devices.

B. H. J. Quint (to Plessey Co. Ltd). BP 732 137, June 22, 1955. Through *BCIRA 36:* 20 (1956).

Sliver activated trip cord stop motion.

E. Pearson. BP 732 382, June 22, 1955. Through *BCIRA 36:* 19 (1956).

Accurate location of packages on ring spindles for uniform bobbins.

F. Harling (to T.M.M. (Research) Ltd). BP 732 383, June 22, 1955. Through *BCIRA 36:* 20 (1956).

Sound-proof guards to twisting machines.

E. P. R. Scragg (to Ernest Scragg and Sons Ltd). BP 732 491, June 22, 1955. Through *BCIRA 36:* 20 (1956).

Spinning mules.

N. H. Chamberlain and B. E. King (to T.M.M. (Research) Ltd). BP 732 665, 666, 669, 671, 672, 675, 676, June 29, 1955. Through *BCIRA 36:* 54 (1956).

These seven inventions relate to the replacement of gears, clutches and other mechanisms for performing the various functions in mule spinning at the proper time and using instead electrical circuits for varying the speeds of the driving mechanisms.

Automatically initiating the winding operation in a cop winding machine.

K. J. Scharer (to Maschinenfabrik Scharer). BP 732 887, June 29, 1955. Through *BCIRA 36:* 56 (1956).

Twisting spindle balloon control.

A. W. Vibber. USP 2 733 566, February 7, 1956.

Thread winding apparatus.

S. Furst (to Walter Reiners). USP 2 733 870, February 7, 1956.

Mandrel for a tubular yarn package support.

S. A. Petersen (to Celanese Corp.). USP 2 733 873, 874, February 7, 1956.

A double twister for simultaneously twisting and abrading yarn.

E. J. Griset, Jr. and D. L. Hart (to American Enka Corp.). USP 2 734 333, February 14, 1956.

Strand break detecting apparatus.

E. F. Saunders and D. Drysdale. USP 2 734 334, February 14, 1956.

Strand interrupting and feeding apparatus.

E. F. Saunders and D. Drysdale. USP 2 734 335, February 14, 1956.

Bobbin cleaning device.

H. A. Wilson and E. C. Alix (to A & W Machine Co.). USP 2 735 158, 159, February 21, 1956.

Apparatus for the twisting and winding of filamentary material.

R. H. Legard, Jr. and E. R. Meadows (to Celanese Corp.). USP 2 735 257, February 21, 1956.

Change gear support for spinning frames and the like.

G. W. Tew (to Deering Milliken Research Corp.). USP 2 735 309, February 21, 1956.

Twisting and plying spindle balloon control.

A. W. Vibber. USP 2 736 160, February 28, 1956.

Apparatus for continuously supplying a twisted sliver to a spinning frame.

F. Steinberger. USP 2 736 162, February 28, 1956.

Grooved roll for traversing yarn.

D. W. Selby (to E. I. du Pont de Nemours & Co.). USP 2 736 506, February 28, 1956.

Torus-shaped package for continuous strands.

W. W. Drummond, W. R. Steitz and P. J. Frickert (to Owens-Corning Fiberglas Corp.). USP 2 736 512, February 28, 1956.

Spinning frame for and method of spinning.

L. Bussiere (to Davis & Furber Machine Co.). USP 2 737 008, March 6, 1956.

Traveler mechanism for identifying warp yarn knots.

E. W. Odell (to Springs Cotton Mills). USP 2 737 351, March 6, 1956.

Control for creeping traverse for rayon pot spinning machines.

W. Kernan (to Skenandoa Rayon Corp.). USP 2 737 352, March 6, 1956.

YARNS B 5

Bulk continuous-filament yarns.

E. I. du Pont de Nemours and Co. BP 732 929, June 29, 1955. Through *BCIRA 36:* 50 (1956).

Protective cover for a freshly spun rayon cake.

R. V. De Vault (to American Enka Corp.). USP 2 734 696, February 14, 1956.

Method for the manufacture of glass fiber twine.

A. R. Morrison (to Owens-Corning Fiberglas Corp.). USP 2 736 163, February 28, 1956.

FABRIC PRODUCTION C

Cloth laying up, and cloth spreading machines.

E. Friis-Hansen. USP 2 737 385, March 6, 1956.

WARPING, SLASHING, YARN PREPARATION C 1

Yarn winding machine of the drum type.

F. Ridgway (to Arundel, Coulthard and Co. Ltd). BP 732 285, June 22, 1955. Through *BCIRA 36:* 24 (1956).

Sizes for synthetic linear polyamide filaments or fibers.

K. W. Mieszkis (to British Nylon Spinners Ltd). BP 732 911, June 29, 1955. Through *BCIRA 36:* 56 (1956).

Antistatic textile lubricants for yarns of cellulose esters and ethers.

Celanese Corp. BP 732 933, June 29, 1955. Through *BCIRA 36:* 56 (1956).

Loom warp reel.

A. R. Granberg. USP 2 733 499, February 7, 1956.

Method of setting the twist in twisted yarns.

L. J. Novak (to Commonwealth Engineering Co. of Ohio). USP 2 734 006, February 7, 1956.

Method of warp preparation for high-twist warp yarns by applying a twist-setting liquid to only a portion of each end of a sized and dried warp sheet to prevent kinking and snarling during tying-in.

S. Drake (to Drake Corp.). USP 2 734 254, February 14, 1956.

Warper tension device.

M. L. Robinette and W. G. Faw (to Eastman Kodak Co.). USP 2 735 632, February 21, 1956.

Sizing agent consisting of an aqueous solution of gelatin containing 2 to 6% by weight of diethanolamine nitrate.

J. Fraizy (to Societe Rhodiaceta). USP 2 735 781, February 21, 1956.

Device for ensuring the correct sequence of threads in a warp.

S. S. C. Fleischer (Denmark). USP 2 736 084, February 28, 1956.

Bobbin stripper.

L. H. Putmon. USP 2 736 962, March 6, 1956.

WEAVING C 2

Warp-beam braking device on looms.

Compagnie des Freins et Signaux Westinghouse (France). BP 732 156, June 22, 1955. Through *BCIRA 36:* 25 (1956).

Shuttle magazine in which chutes have a star or radial arrangement.

E. A. Butin (France). BP 732 288, June 22, 1955. Through *BCIRA 36:* 25 (1956).

Shuttle picking mechanism.

Sulzer Freres Soc. anon. (Switzerland). BP 732 332, 333, June 22, 1955. Through *BCIRA 36:* 25 (1956).

Heddle actuating and controlling mechanism in circular looms.

Société des Applications Générales d'Electricité et de Mécanique. BP 732 336, June 22, 1955. Through *BCIRA 36:* 24 (1956).

Heddle portable hand-looms.

M. Rubashow. BP 732 541, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Jacquard-controlled mechanism for weaving labels.

D. Choyce and W. Matterson (to Matterson and Sons Ltd). BP 732 580, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Shuttles molded from a co-polymer of acrylonitrile and alkyl methacrylates.

Rohm and Haas GmbH (Germany). BP 732 612, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Shuttle picking mechanism for looms.

Sulzer Freres Soc. anon. (Switzerland). BP 732 641, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Buffer devices for checking loom pickers.

A. J. Hirst (to Metalastik Ltd). BP 732 834, June 29, 1955. Through *BCIRA 36:* 58 (1956).

Safety device for jacquard mechanism.

H. D. Walker (to Peter Walker (Blackburn) Ltd). BP 732 895, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Hydraulic picking motion.

Wolldeckenfabrik Zoeppritz AG (Germany). BP 732 909, June 29, 1955. Through *BCIRA 36:* 57 (1956).

Weaving fabrics with increased warp density from the selvages towards the center (bed sheets).

A. I. Lenton and C. W. Longhurst (to Richard Haworth and Co. (Manufacturing) Ltd). BP 733 041, 042, July 6, 1955. Through *BCIRA 36:* 58 (1956).

Cop-changing mechanism for looms.

W. F. Keay and T. A. C. Keay (to T. C. Keay Ltd). BP 733 082, July 6, 1955. Through *BCIRA 36:* 58 (1956).

Fork grids for looms.

S. L. Huffman and R. J. Irwin. USP 2 733 735, February 7, 1956.

Circular looms for weaving of hoses.

C. Christiansen and G. O. K. Rüsch (Norway). USP 2 735 451, February 21, 1956.

Screen take-up control mechanism.

R. A. Christy (to Borg-Warner Corp.). USP 2 735 453, February 21, 1956.

Devices for braking and propelling the shuttle in mechanical looms.

P. C. Sellés (Spain). USP 2 736 340, February 28, 1956.

Shuttle replacing means for looms.

C. Fuchs (to Wolldeckenfabrik Zoeppritz AG). USP 2 736 341, February 28, 1956.

Loom feeler mechanism to initiate the operation of filling replenishing mechanism.

C. L. Whitley, Sr. USP 2 736 342, February 28, 1956.

Warp crossing means for circular weaving looms.

O. Lariviere (to Saint Freres, soc anon.). USP 2 737 207, March 6, 1956.

Loom let-off mechanism.

P. W. Meyer (to Deering Milliken Research Corp.). USP 2 737 209, March 6, 1956.

Loom shuttle.

H. W. Richardson (to Charles A. Richardson, Inc.). USP 2 737 210, March 6, 1956.

KNITTING C 3

Flat warp knitting machine.

A. W. H. Porter (to F.N.F. Ltd). USP 2 733 583, February 7, 1956.

Method of knitting full-fashioned hosiery.

C. F. Schlemmer (to Textile Machine Works). USP 2 733 584, February 7, 1956.

Straight bar knitting machine.

E. M. Zesch (to Karl Lieberknecht, Inc.). USP 2 734 360, February 14, 1956.

A knitting machine of the type employed in plating.

L. Blais (to Tricnit Hosiery Mills, Inc.). USP 2 734 361, February 14, 1956.

Drop-wire and drop wire assembly.

E. A. Schiek. USP 2 734 362, February 14, 1956.

A knitted stocking with leg and foot portions of knitted courses of uniform tightness and welt, heel and toe portions of tight and loose courses.

W. De Mond. USP 2 734 363, February 14, 1956.

Thread guide for hand-operated knitting machines.

E. Piltz (to Willy Werner Lenkeit). USP 2 735 282, February 21, 1956.

Knitting machine.

P. W. Bristow (to Scott & Williams, Inc.). USP 2 736 177, February 28, 1956.

Speed changing mechanism for knitting machines.

R. H. Lawson (to Scott & Williams, Inc.). USP 2 736 178, February 28, 1956.

Apparatus for making crochet curtain materials and similar net-like basic patterns.

R. Dittrich (Germany). USP 2 736 179, February 28, 1956.

Knitting of stockings.

V. Skole (Denmark). USP 2 736 180, February 28, 1956.

A process for producing knitted nylon fabric of substantial stretchability.

A. Burleson and M. N. Holmes (to Patentex, Inc.). USP 2 736 945, March 6, 1956.

Guide bar mechanism for warp knitting machines.

H. C. Noe (to Kidde Manufacturing Co. Inc.). USP 2 737 034, March 6, 1956.

Method of plating heels in stockings.

A. M. Bryan and C. O. Simms (to Bryan F. F. Mills, Inc.). USP 2 737 035, March 6, 1956.

Apparatus for packaging hosiery blanks.

H. G. Bell (to Paramount Textile Machinery Co.). USP 2 737 324, March 6, 1956.

FABRICS C 4

Polyethylene monofils as the thermoplastic components of an interlining fabric.

L. Bihaly (to Trubenised (Gt. Britain) Ltd). BP 732 107, June 22, 1955. Through *BCIRA 36:* 26 (1956).

Pile-surfaced material with adhesive layer set into a backing sheet.

J. C. Thornton (to J. Goddard and Sons Ltd). BP 732 980, July 6, 1955. Through *BCIRA 36:* 58 (1956).

Laminated fiber and paper yarns and fabrics.

D. W. Light. USP 2 734 532, February 14, 1956.

Coated pile fabric.

L. W. Rainard and E. P. Mersereau, Jr. (to Alexander Smith, Inc.). USP 2 734 834, February 14, 1956.

Method for the production of a patterned double woven pile fabric having floating pile threads.

H. W. J. Hellebrekers (to Koninklijke Vereenigde Tapijtfabrieken N.V.). USP 2 735 452, February 21, 1956.

Wettable fiber felt of cellulosic fibers and cured hydrophilic binder material.

D. E. Dahle (to Wood Conversion Co.). USP 2 737 179, March 6, 1956.

Porous fabrics overlapped and heat sealed together over at least a portion of the overlapped area, the sealed area being as porous as the unsealed layers.

W. P. Utermohlen, Jr. and J. C. Bletzinger (to Kimberly-Clark Corp.). USP 2 737 466, March 6, 1956.

FINISHING AND CHEMICAL PROCESSING D

CHEMICAL PROCESSES D 1

Washable water repellent finish for fabrics and paper.

Farbenfabriken Bayer AG (Germany). BP 732 126, June 22, 1955. Through *BCIRA 36:* 33 (1956).

Improving crease and shrink resistance using epoxy compounds.

N. V. de Bataafsche Petroleum Maatschappij. BP 732 573, June 29, 1955. Through *BCIRA 36:* 67 (1956).

Acrylonitrile treatment of cotton for mildew-proofing.

Institute of Textile Technology. BP 732 779, June 29, 1955. Through *BCIRA 36:* 67 (1956).

Method of making glazed pattern calendered fabric.

W. W. Russell and H. C. Allen (to Sayles Finishing Plants, Inc.). USP 2 733 998, February 7, 1956.

Setting and stiffening fabrics.

G. K. Mecklenburgh, H. W. Peters and S. Shaw (to British Nylon Spinners Ltd). USP 2 734 001, February 7, 1956.

Finishing textiles with water soluble N-methylol polypyrrolidones.

C. A. Robinson (to Arnold, Hoffman and Co., Inc.). USP 2 734 004, February 7, 1956.

Water-resistant textiles.

L. J. Novak and J. T. Tyree (to Commonwealth Engineering Co. of Ohio). USP 2 734 005, February 7, 1956.

Weftless ribbons of bonded yarns.

J. Downing (to British Celanese Ltd). USP 2 734 012, February 7, 1956.

Washing and softening textile goods.

W. Hagge and M. Quaedvlieg (to Farbenfabriken Bayer AG). USP 2 734 830, February 14, 1956.

A method of treating textile materials with a softening and non-yellowing agent comprising sulfosuccinate esters of fatty acid mono- and diglycerides.

J. T. Thurston (to American Cyanamid Co.). USP 2 734 833, February 14, 1956.

Soil resistant fabric and method of making the same.

P. A. Florio and L. W. Rainard (to Alexander Smith, Inc.). USP 2 734 835, February 14, 1956.

Method of making bonded resilient fibrous material.

P. Merriman (to Dunlop Tire & Rubber Corp.). USP 2 734 841, February 14, 1956.

A curved roll for spreading and guiding a web.

A. E. Craver (to American Viscose Corp.). USP 2 735 156, February 21, 1956.

Inhibition of dark spots on freshly spun viscose by washing with a specific sequestering agent.

D. J. Godehn (to American Enka Corp.). USP 2 735 742, February 21, 1956.

A resin treated fabric permeable to air and water absorptive.

A. F. Schramm, Jr. USP 2 735 786, February 21, 1956.

Waterproofing compositions.

P. P. Peyrot and J. Proriol (to Societe des Usines Chimiques Rhone-Poulenc). USP 2 735 791, February 21, 1956.

Continuous textile rope washer.

W. W. Arnold (to Wiesner-Rapp Co., Inc.). USP 2 736 183, February 28, 1956.

Machine for removing cores from annular yarn cakes and then supporting and wetting the cakes.

J. W. Harvey, Jr. and F. G. Kraft (to E. I. du Pont de Nemours & Co.). USP 2 736 184, February 28, 1956.

Apparatus for applying a plastic coating to threads, yarns, etc.

A. W. Allen. USP 2 736 289, February 28, 1956.

Apparatus for the fluid treatment of textile thread packages.

B. Bolomey (to Soc. de la Viscose Suisse). USP 2 737 041, March 6, 1956.

Method of impregnating a wool product with an aqueous dispersion of a sulfur vulcanizable unsaturated polymeric substance.

G. W. Pierce. USP 2 737 434, March 6, 1956.

Method of washing raw wool with organic solvents.

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